

Abstract

A coolant system for cooling a fiber includes a heat exchanger with an internal passage disposed between a fiber inlet and fiber outlet to cool the fiber moving through the internal passage. A plurality of chambers are disposed within the internal passage, and at least one fluid medium flows within at least a portion of the internal passage, and at least one adjustable seal is positioned within the internal passage to form a partition between two adjacent chambers. A gas analyzer communicates with at least one chamber of the internal passage to extract a fluid sample from the chamber and to measure a concentration of a gas in the extracted fluid sample. A controller communicates with the analyzer and controls at least one of the adjustable seal and the flow rate of fluid medium within the internal passage based upon the measured concentration.